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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/733,099 | 12/10/2003 | Je-Young Chang | 42P18071 | 9174 |

8791 7590 09/19/2006

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| EXAMINER |
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WILSON, GREGORY A

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| ART UNIT | PAPER NUMBER |
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3749

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/733,099

Applicant(s)

CHANG ET AL.

Examiner

Gregory A. Wilson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-21 is/are allowed.
- 6) ☒ Claim(s) 1-14 and 22-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments, filed 11/12/04, with respect to the rejection(s) of claim(s) 1-21 under Morris et al (6,608,752) and Seidenberg et al (4,883,116) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Pessolano et al (3,880,230), Zhou et al (6,994,151), and Thomas (6,167,948).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 4, 5, 9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by **Thomas (6,167,948)**. **Thomas** discloses a device (220) that includes a boiling structure (53) to convert a coolant from liquid to vapor and has a first thermal resistance, a wick structure (21) preferably elements (57, 63, 50) which surround the boiling structure and brings a coolant to the boiler structure for vaporization wherein a person having ordinary skill in the art would recognize that that wick structure has a thermal resistance higher than the resistance of the boiling structure, since the boiling structure would have a thermal conductive structure to absorb heat in order to vaporize the fluid. (SEE Figure 2). The top surface of the wick structure (SEE Figure 2, particularly the outer rim of element 50) extends above the top surface of the boiling structure. **Thomas** furthermore includes a casing configuration as shown in Figure 1.

Claims 1, 5, 8 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by **Zhou et al (6,994,151)**. **Zhou et al** discloses a boiling structure (99) to convert a coolant from liquid to vapor and has a first thermal resistance, a wick structure (118') surrounding the boiling structure and extending above the boiling structure (Figure 2B) to bring the coolant to the boiling structure in which its' thermal resistance is higher than the boiling structure allowing for vaporization.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Pessolano et al (3,880,230)**. **Pessolano et al** discloses a device (18) including a porous structure (ie: boiling structure) (37) to convert a coolant (41) to a vapor, a wick structure (42) surrounding the porous structure to wet the porous structure with the coolant from multiple sides of the porous structure. **Pessolano et al** does not particular teach that the porous structure has an average diameter of 50 μm or 500 μm or the applicants disclosed thermal resistivity. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use these parameters when choosing the porous structure, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Claims 2, 3, 6-8, 10, and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over either **Zhou et al or Thomas**. Both **Zhou et al** and **Thomas** disclose the applicants inventive concept as stated above but does not particular teach specific design values for the porous structure and boiling structure. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose a boiling structure and porous structure of the sizes as disclosed by the applicant and in the case of the wick, choosing the thermal resistivity and materials used in fabrication, since it has been held that discovering an optimum value of a result effective variable

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involves only routine skill in the art and additionally selecting a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

Allowable Subject Matter

Claims 15-21 are allowed.

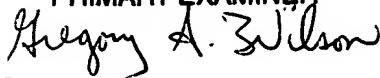
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory A. Wilson whose telephone number is (571)272-4882. The examiner can normally be reached on 7 am - 4:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ehud Gartenberg can be reached on (571) 272-4828. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GREGORY WILSON
PRIMARY EXAMINER

A handwritten signature in cursive script that reads "Gregory A. Wilson".

Gaw

September 7, 2006